

CONTROLLED SEPARATION HEART VALVE FRAME

Abstract of the Disclosure

A highly flexible prosthetic heart valve having an internal leaflet support frame that is designed to separate into individual cusps after implantation. The leaflet support frame (or “stent” or “wireform”) has a plurality of alternating cusps on an inflow end and commissures on an outflow end. The cusps of flexible leaflets attach around the support frame cusps. The support frame provides structural rigidity during implantation, but each support frame commissure has a point of weakness that is designed to fracture upon repeated relative movement of the cusps after implantation such that the support frame cusps separate. Because of the flexible nature of the heart valve, after the cusps separate the implanted heart valve does not significantly impede the natural motions of the annulus or adjacent vessel walls. The support frame may be a homogeneous material such as Nitinol with the point of weakness being a narrowing at the commissure tips. The commissure tips can include enlarged regions adjacent the point of weakness that help prevent the separated ends from poking through surrounding fabric.